

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte YAKIR REUVEN and KOU-CHANG LIU

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Appeal No. 1997-2233  
Application No. 08/365,384

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ON BRIEF

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Before CAROFF, GARRIS, and KRATZ, Administrative Patent Judges.

CAROFF, Administrative Patent Judge.

DECISION ON APPEAL

This decision on appeal relates to the final rejection of claim 1, the sole claim pending in appellants' application.

The subject claim relates to a process for making substantially homogeneous copolymers having a selected composition and composed of at least two monomers having differing reactivity rates. The polymerization reactor is

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precharged with the slowest reacting monomer, and the faster reacting monomer is then introduced at a specific feeding schedule. The feeding schedule is determined before the polymerization is conducted by employing an iterative technique using the particular set of equations recited in the claim on appeal. Appellants' claim is reproduced in an appendix to our decision.<sup>1</sup>

The examiner relies upon the following two prior art references in rejecting appellants' claim:

Hendy	4,039,734	Aug. 2, 1977
Wingler et al. (Wingler)	4,141,934	Feb. 27, 1979

The following rejections are before us:

1. Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103 as being obvious over Hendy.<sup>2</sup>

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<sup>1</sup> Apparently, the word "sais" on line 2 of the last paragraph of the claim is a typographical error and, presumably, was meant to be "said". Accordingly, both appellants and the examiner should make sure that this error is corrected upon resumption of ex parte prosecution.

<sup>2</sup> As to the rejection under 35 U.S.C. § 102(b) or 35 U.S.C. § 103 over Hendy, a formal statement of the grounds of rejection has been omitted from the examiner's Answer.

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2. Claim 1 also stands rejected under 35 U.S.C. § 103 as being obvious over Hendy in view of Wingler.

Based upon the record before us, we agree with appellants that the examiner has failed to establish a prima facie case of obviousness or anticipation. Accordingly, we reverse all of the rejections at issue.

According to the examiner, there is a reasonable basis to believe that the monomer feeding schedule employed by Hendy would be essentially the same as that which would be calculated by using appellants' equations since essentially identical results are obtained by Hendy and appellants. In other words, both maintain a constant monomer ratio in a reaction mixture during the course of the reaction which results in production of a homogeneous polymer product. Even if we accept this finding as being true, it is not dispositive of the issues on appeal.

A question remains as to whether appellants' claim affirmatively includes the step of determining the feeding

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However, we assume from the remarks in numbered section (9) of the Answer that the rejection is maintained by the examiner.

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schedule by using the recited equations in accordance with the iterative technique disclosed by appellants. The examiner is of the view that this is nothing more than a "mental" step and is analogous to process language in a product-by-process claim which is anticipated by an identical product made by a different process. We cannot subscribe to this view. We are dealing here with a determination of the scope of a process claim, not a product-by-process claim. Due weight must be accorded to all the recited limitations in a process claim. Thus we agree with appellants that it is eminently reasonable to construe the claim as requiring a step of predetermining the requisite feeding schedule "before the polymerization" by use of the specifically recited equations in accordance with the disclosed iterative technique. In other words, we view that step as being an integral part of the claimed process. In doing so, anticipation and obviousness become problematic inasmuch as the prior art does not teach or suggest the particular technique used by appellants to determine the monomer feeding schedule. Certainly, Hendy does not predetermine the schedule before the polymerization reaction is conducted since Hendy relies upon empirical data generated

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during the reaction to determine the schedule for adding monomer. Further, even if we assume that Wingler somehow suggests predetermining the addition schedule, as the examiner asserts, there is no suggestion to do this by using appellants' iterative approach in accordance with the particular set of equations recited in the claim at issue.

For the foregoing reasons, the decision of the examiner is reversed.

No period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED

MARC L. CAROFF	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
BRADLEY R. GARRIS	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	

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PETER F. KRATZ )  
Administrative Patent Judge )

lp

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INTERNATIONAL SPECIALTY PRODUCTS  
1361 ALPS ROAD  
LEGAL DEPARTMENT BUILDING NO 10  
WAYNE NJ 07470

APPENDIX

Claim 1. A process for making substantially homogeneous polymers of at least two monomers having substantially differing reactivity rates, in a selected composition, by polymerization of said monomers, comprising:

(a) precharging all of the slowest reacting monomer in an amount in accordance with the selected composition, optionally with part of one or more of said faster reacting monomers, and

(b) introducing the faster reacting monomer or monomers independently and incrementally or continuously into the reactor at a specific feeding schedule for each monomer, as determined for each monomer before the polymerization by the following equations:

$$y_j(f) = \frac{I + \text{exb} \left[ \frac{g_{3j}}{S} - \frac{g_{5j}}{g_{5j}} - f \right]}{I} \left[ I + \text{exb} \left[ \frac{g_{4j}}{S} + \frac{g_{5j}}{g_{5j}} - f \right] \right] \left[ I - \frac{I}{I} \right]$$

EQUATION 1

where  $A_j(t)$  has four adjustable parameters,  $a_1$ ,  $a_2$ ,  $a_3$  and  $a_4$  for each monomer:

and

$a_1$  determines the center of the distribution;

$a_2$  affects the width of the distribution;

$a_3$  determines the ascending portion of the distribution;

and

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$$\% \text{ of Monomer } i \text{ consumed at time } t^i = \frac{\int_0^N y^i(t^i) dt}{y^i(t^i)} \times 100$$

### EQUATION 5

$a_4$  determines the descending portion of the distribution;  
 and  
 $t$  = time in minutes during copolymerization;

and

where  $N$  = the overall time of the polymerization reaction;  
 wherein a set of determined values for  $a_1$ ,  $a_2$ ,  $a_3$ , and  
 $a_4$  provides said specific feeding schedule and assures that  
 the curve of the rate of disappearance vs. time for the  
 fastest reacting monomer substantially coincides with the rate  
 of disappearance for each of the slower reacting monomer or  
 monomers, as shown in Figure 2 herein.

***Leticia***

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APJ CAROFF

APJ GARRIS

APJ KRATZ

DECISION: REVERSED

Send Reference(s): Yes No  
or Translation (s)

Panel Change: Yes No

Index Sheet-2901 Rejection(s):

Prepared: December 6, 2000

Draft                  Final

3 MEM. CONF.    Y                  N

OB/HD                  GAU

PALM / ACTS 2 / BOOK

DISK (FOIA) / REPORT